

FIG. 1

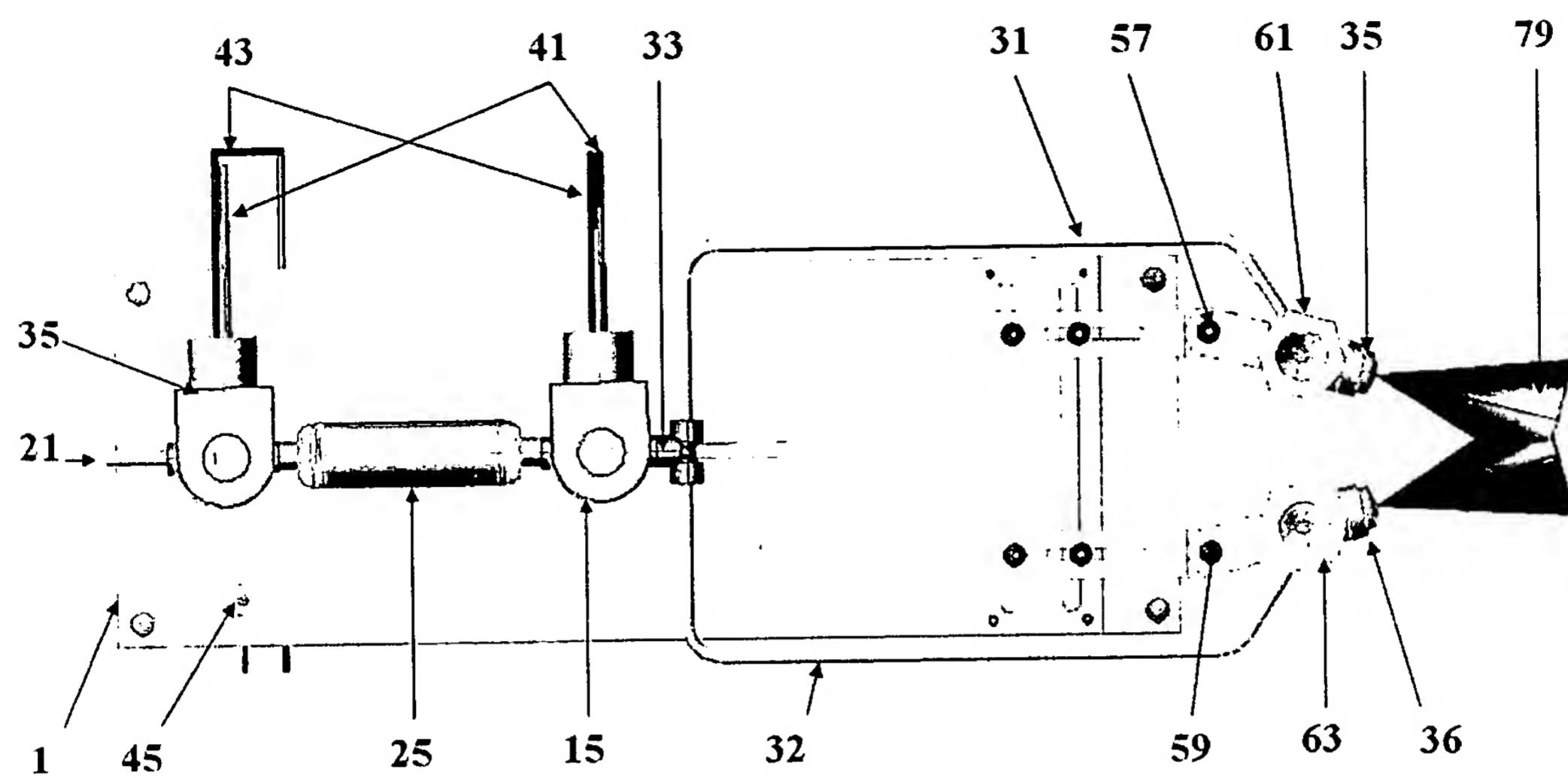


FIG. 2

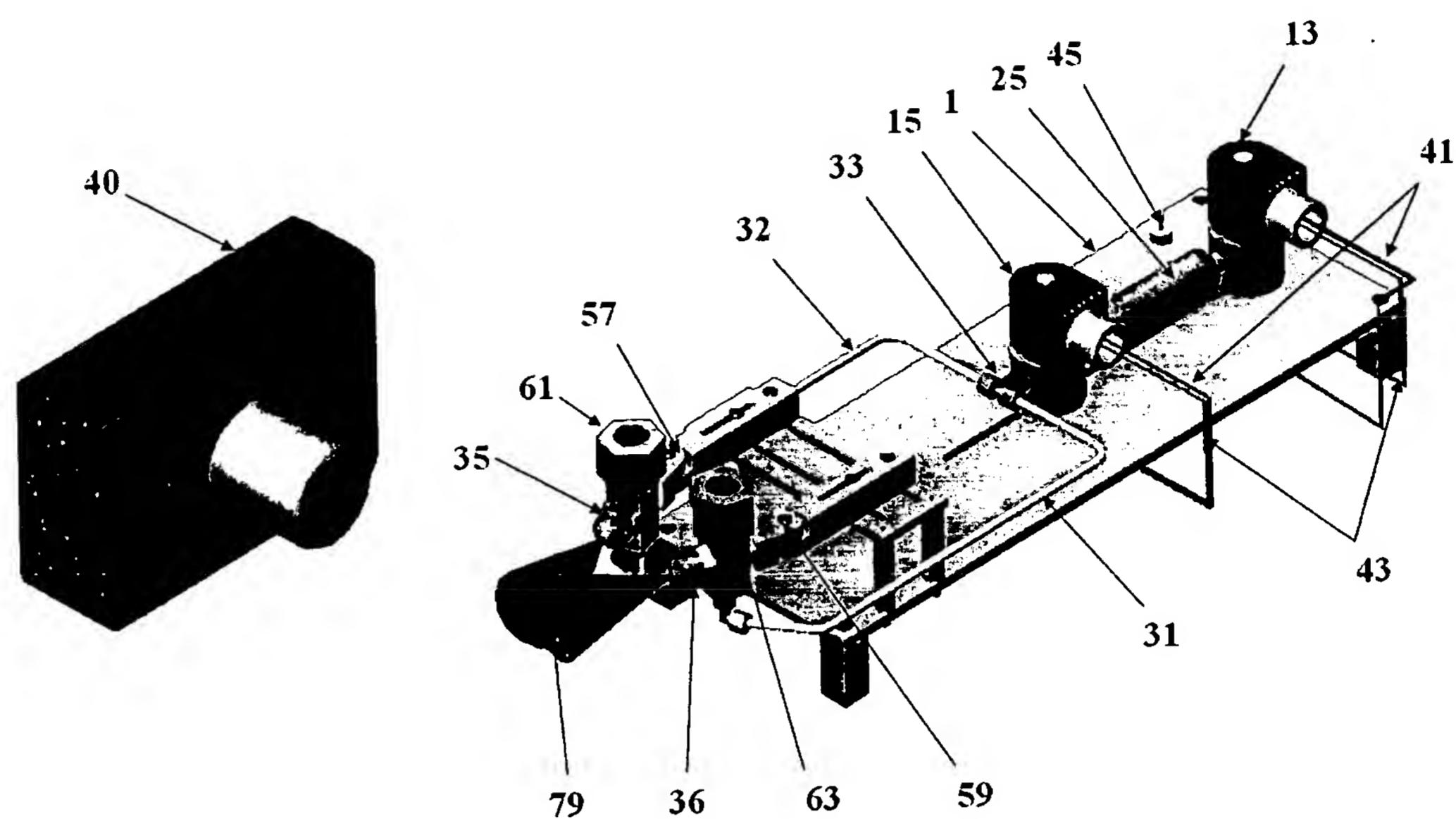


FIG. 3

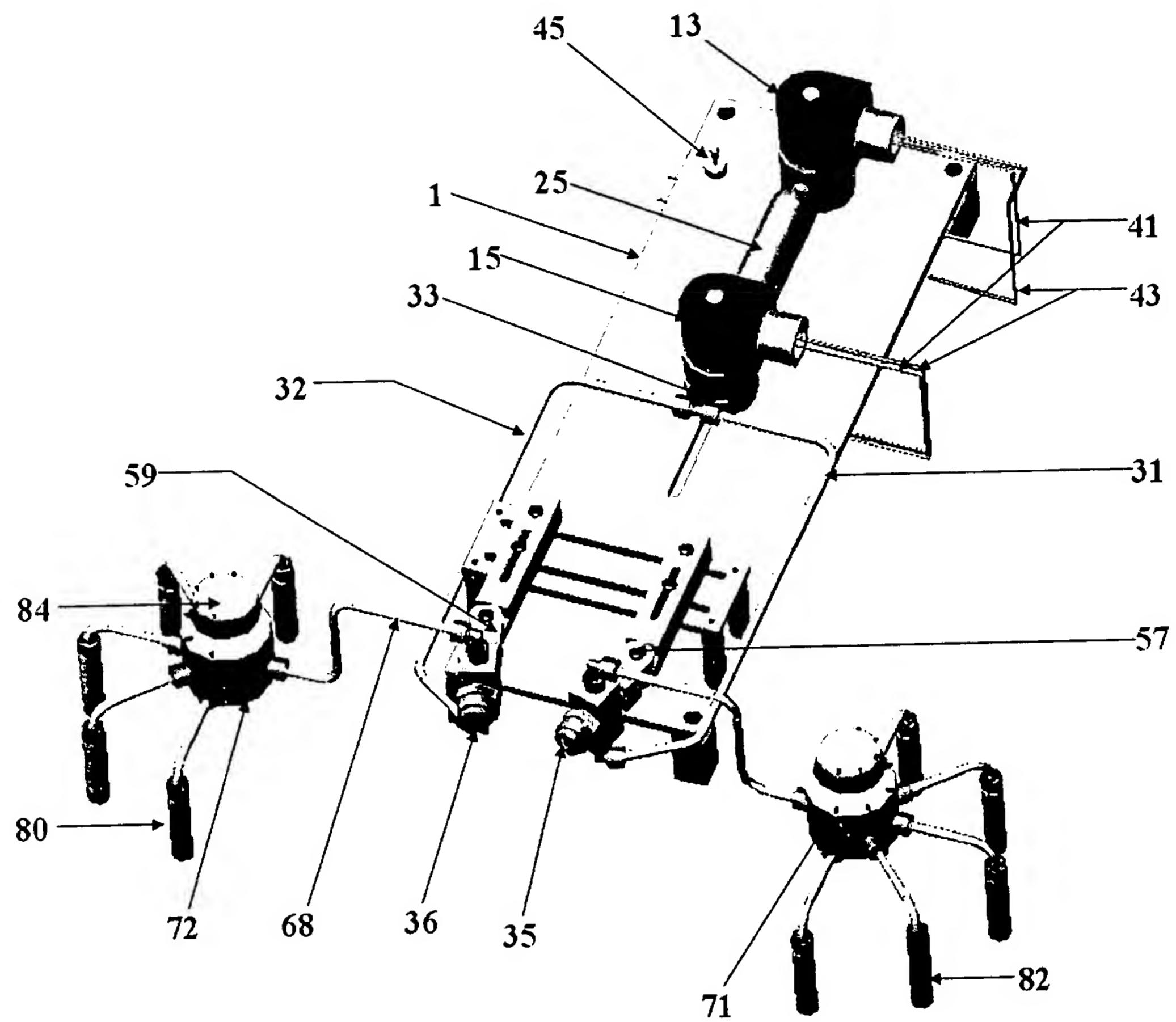


FIG. 4

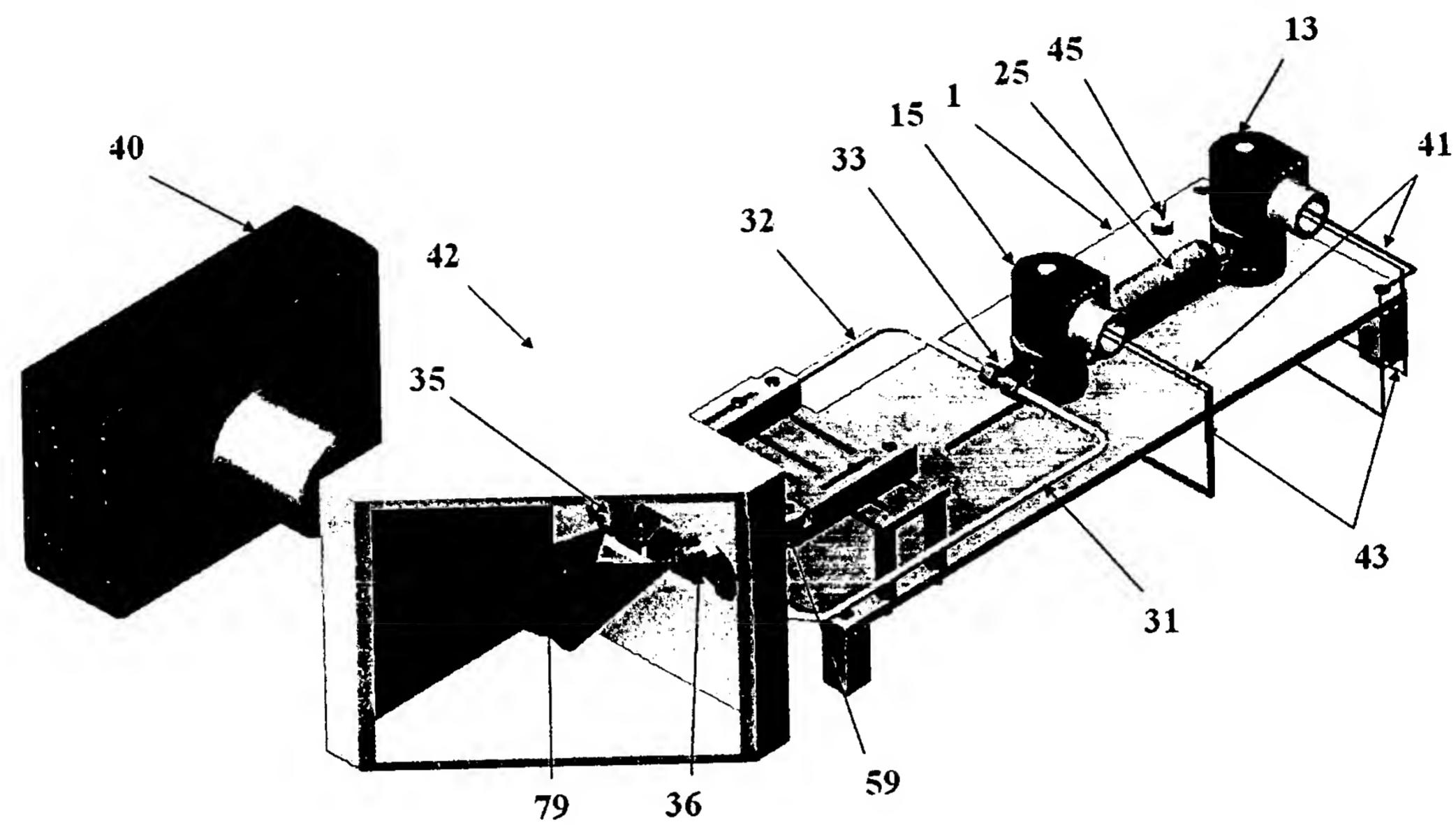


FIG. 5

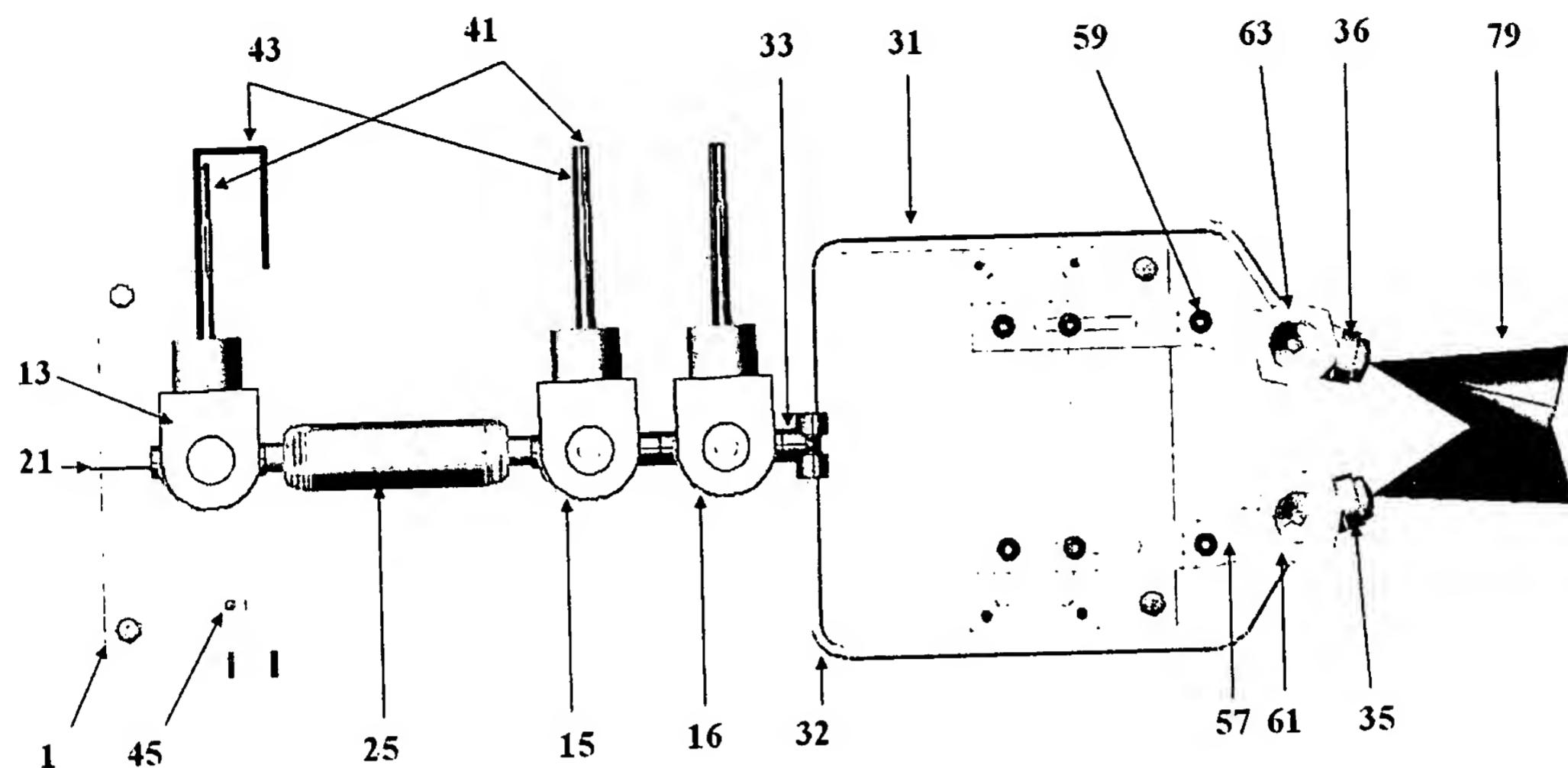


FIG. 6

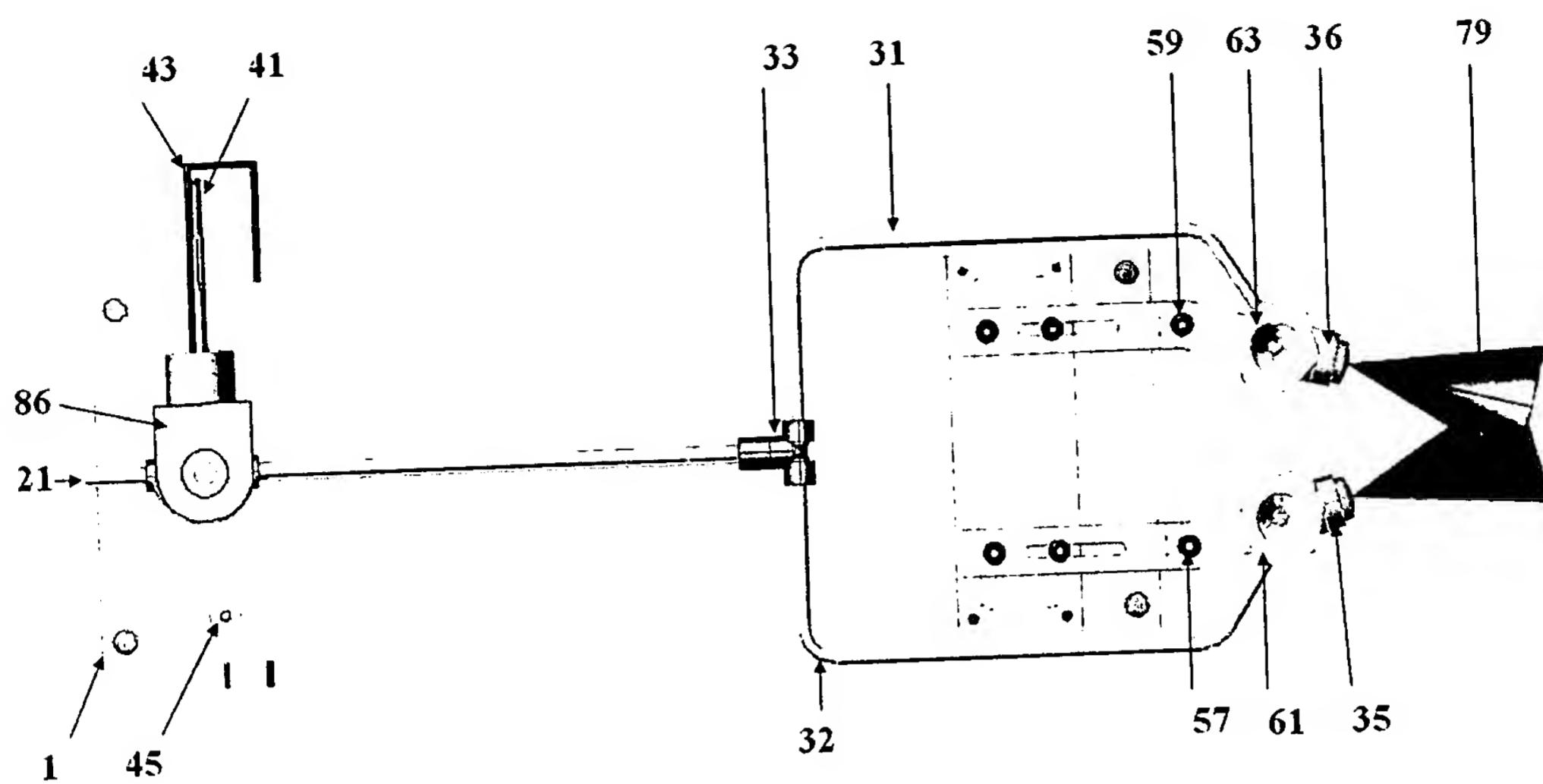
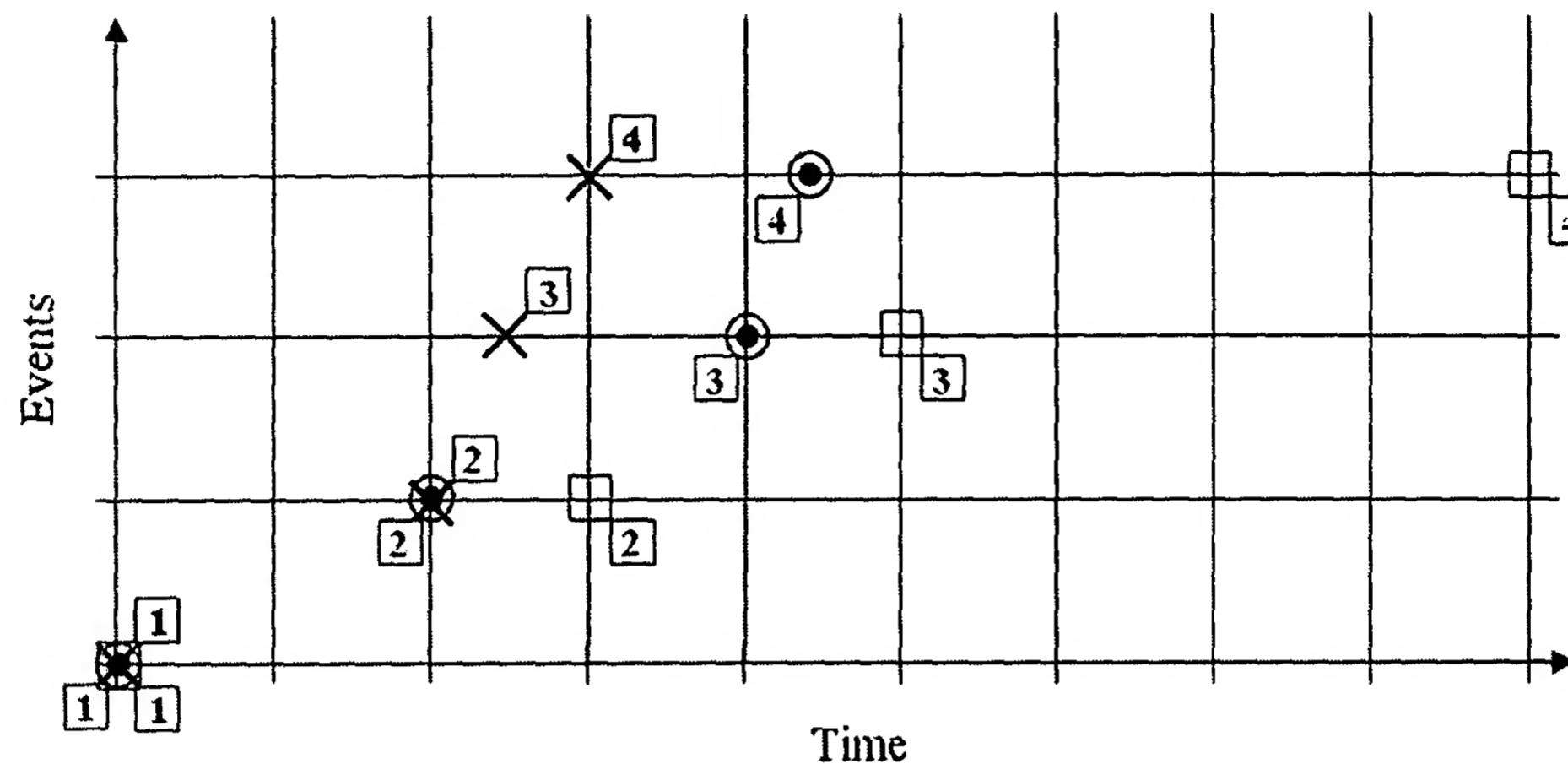


FIG. 7

### Two-Sprays, Two-Jets and Drop Test – Difference in Ignition Delay Values



Legend:

Symbol	Device
X	Two-sprays
○	Two-jets
□	Drop Test

#### Drop Test:

1. Propellant out of drop generator
2. Drop hits crucible
3. Propellants visibly reacting
4. Ignition

#### Two-Sprays and Two-Jets:

1. Propellants out of nozzles
2. Propellants impinge on each other
3. Propellants visibly reacting
4. Ignition

FIG. 8

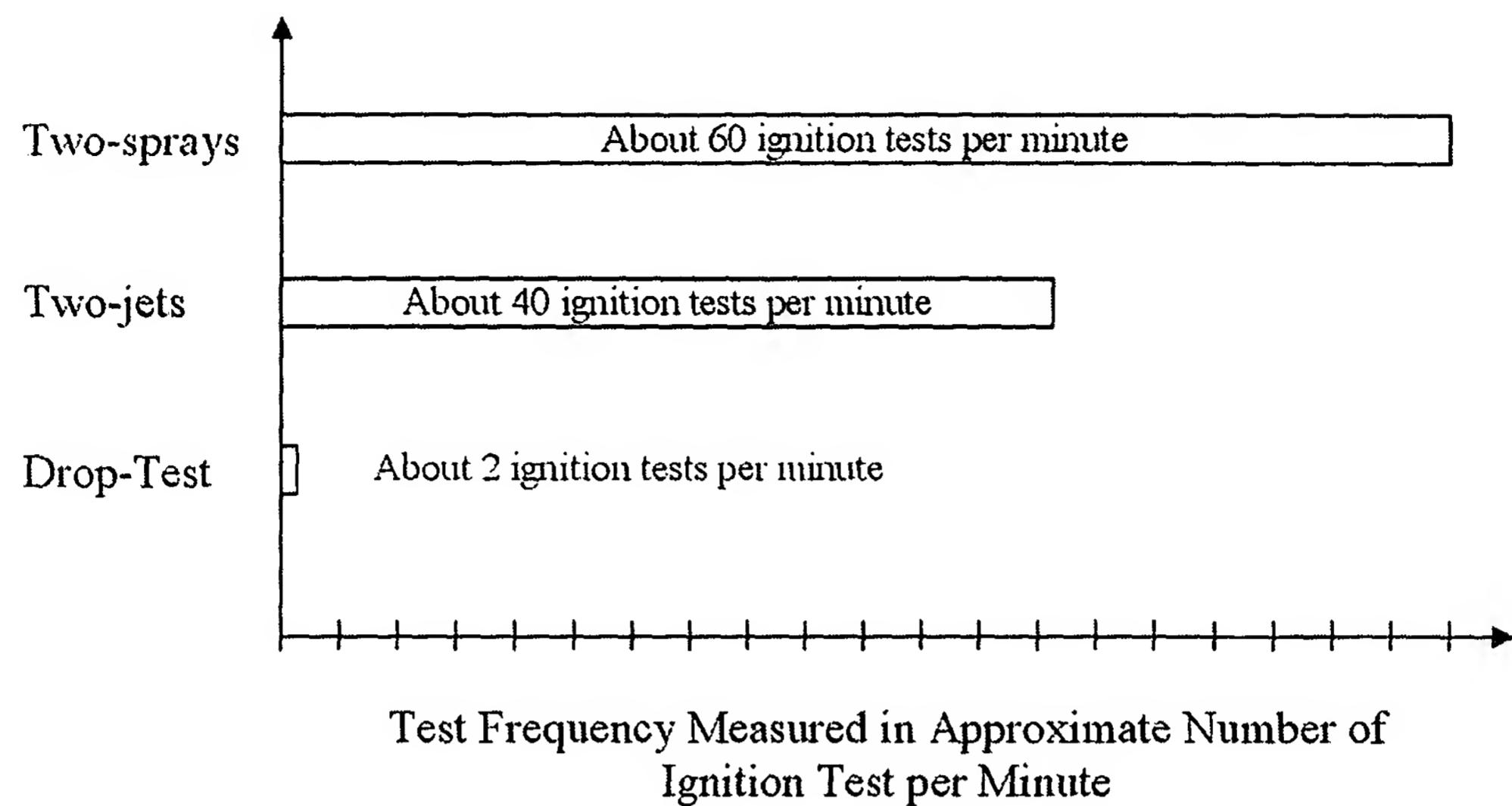


FIG. 9

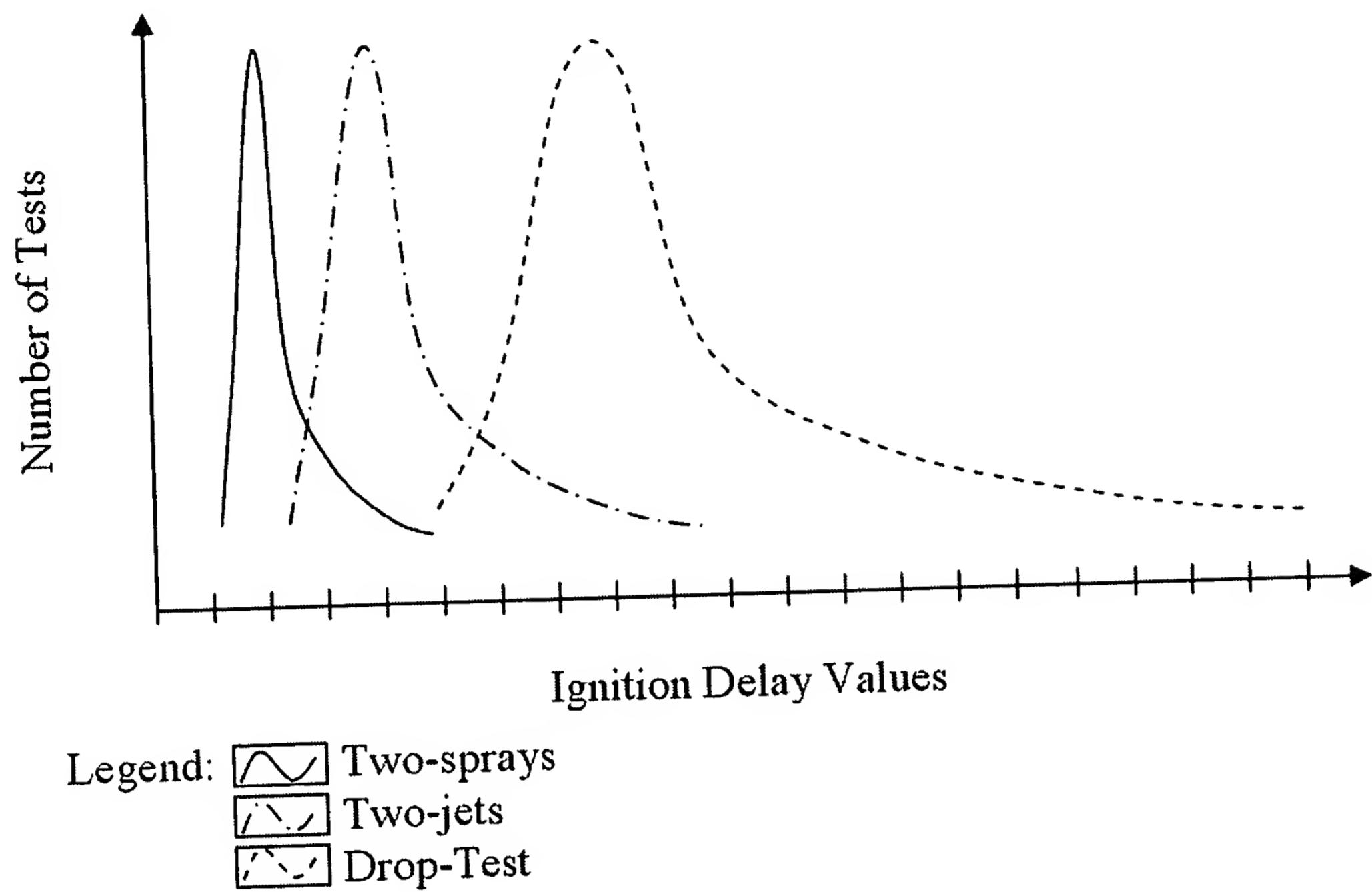


FIG. 10

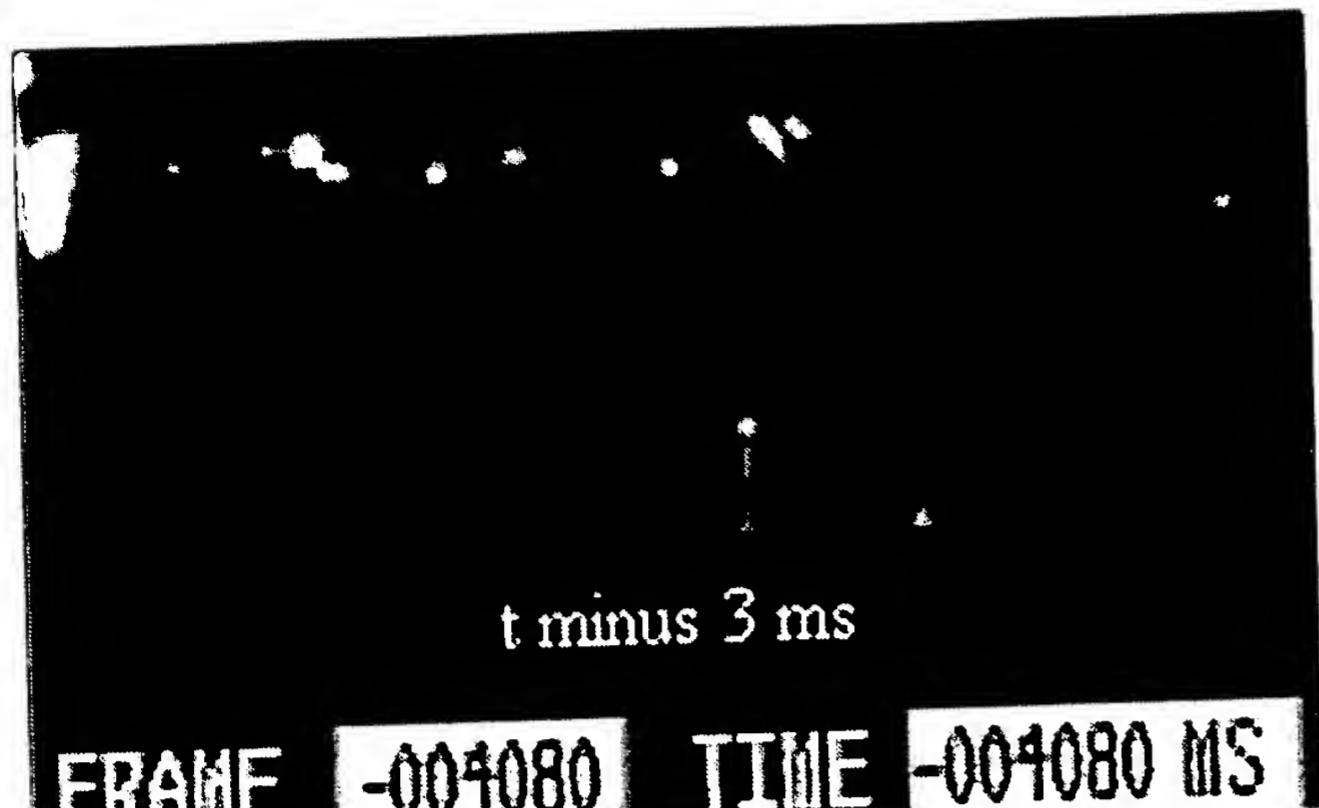


FIG. 11a

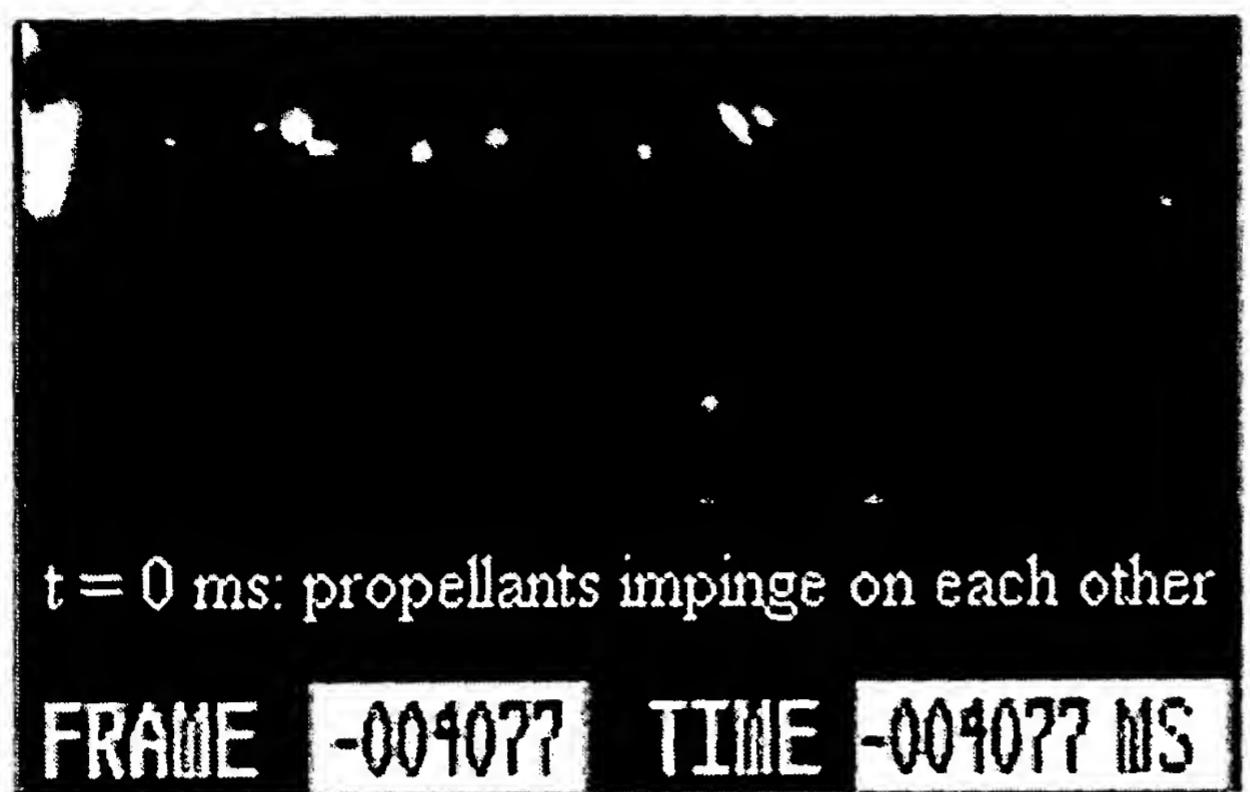


FIG. 11b

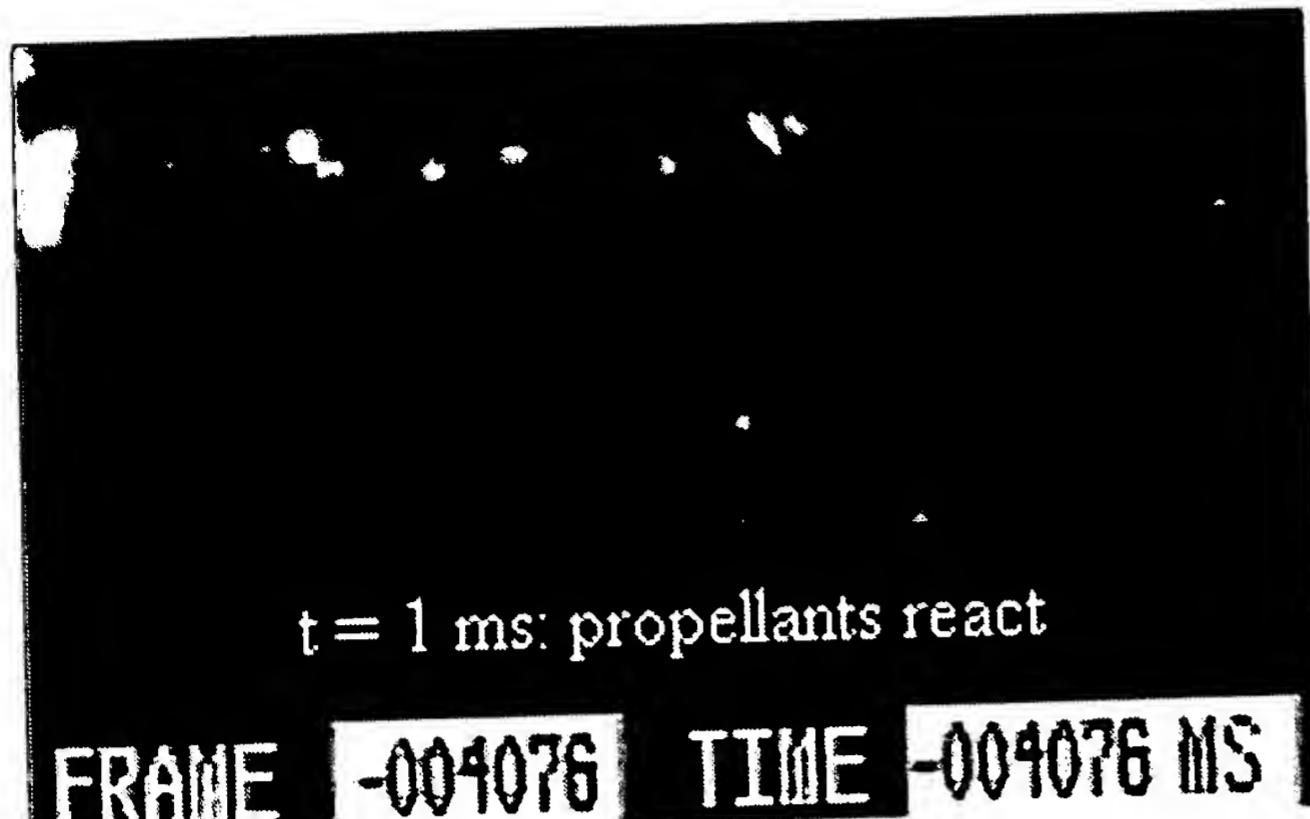
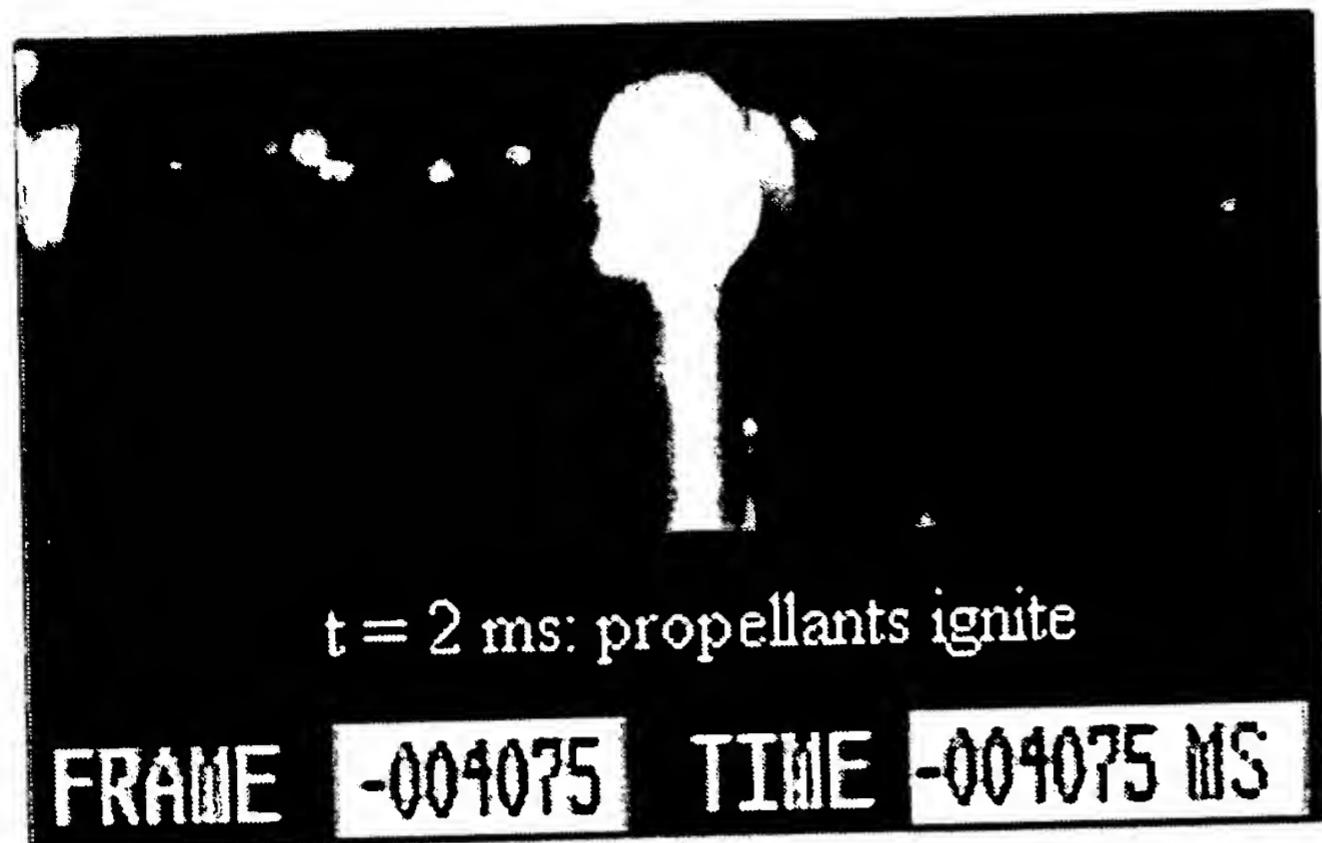


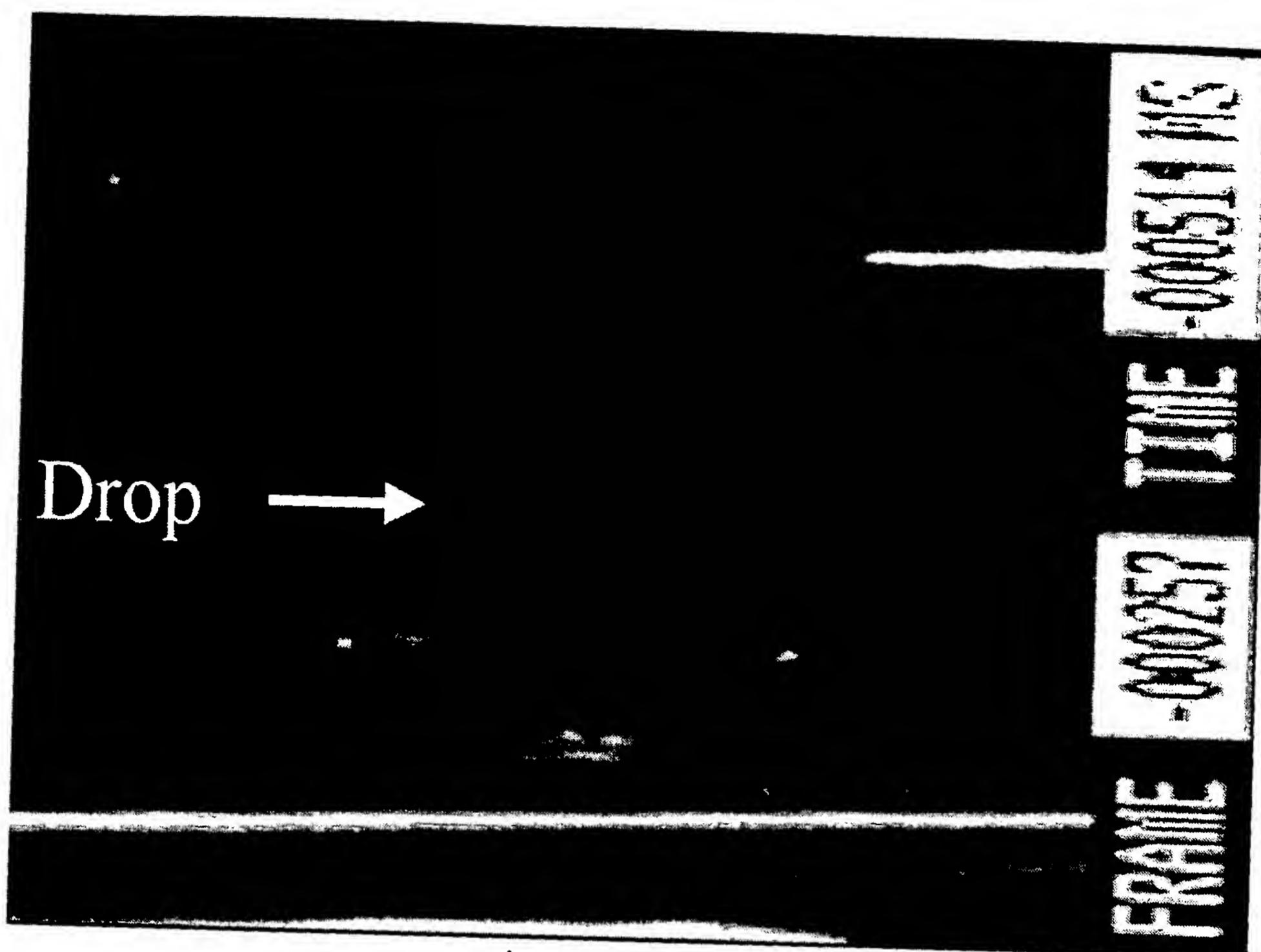
FIG. 11c



$t = 2 \text{ ms}$ : propellants ignite

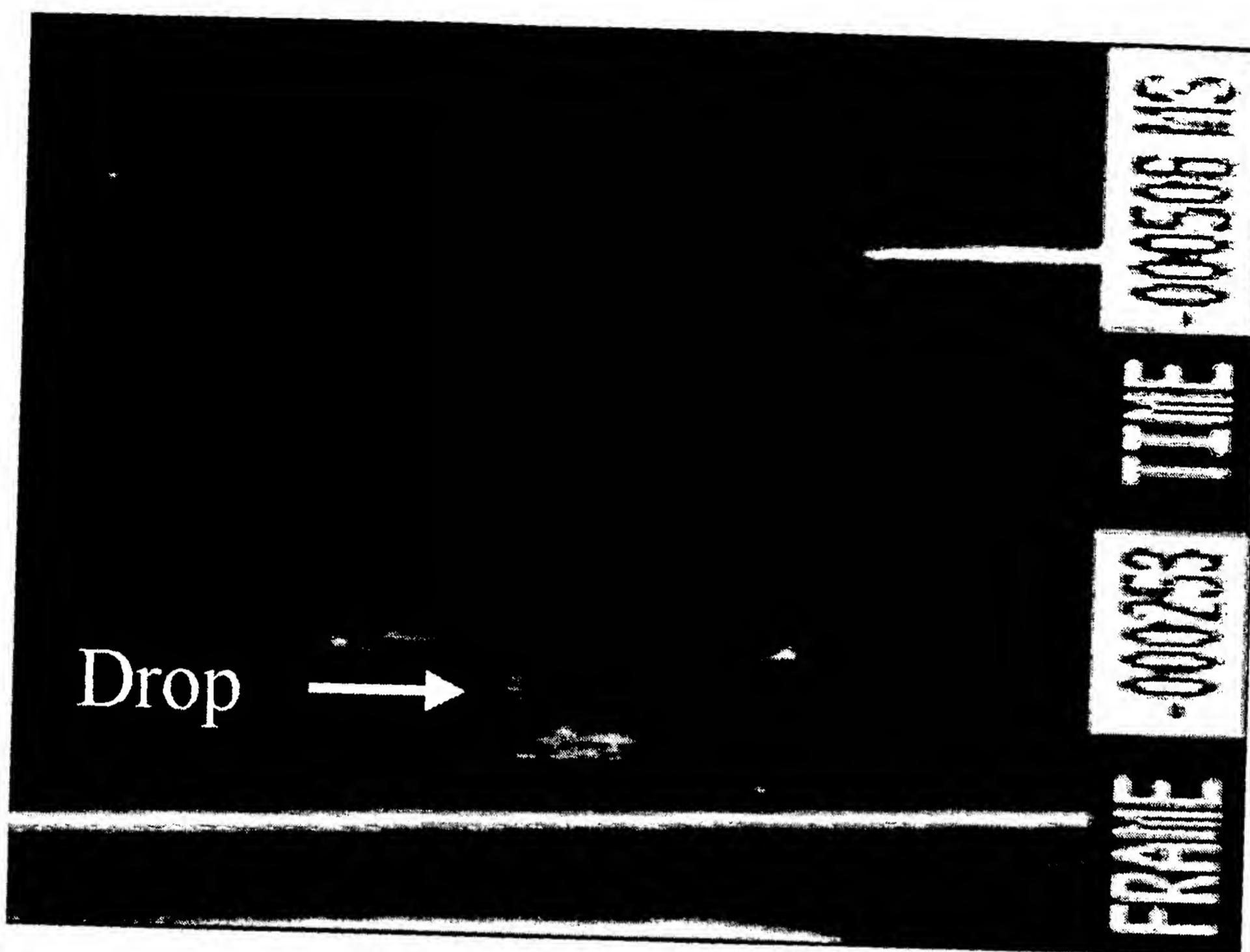
FRAME -004075 TIME -004075 MS

FIG. 11d



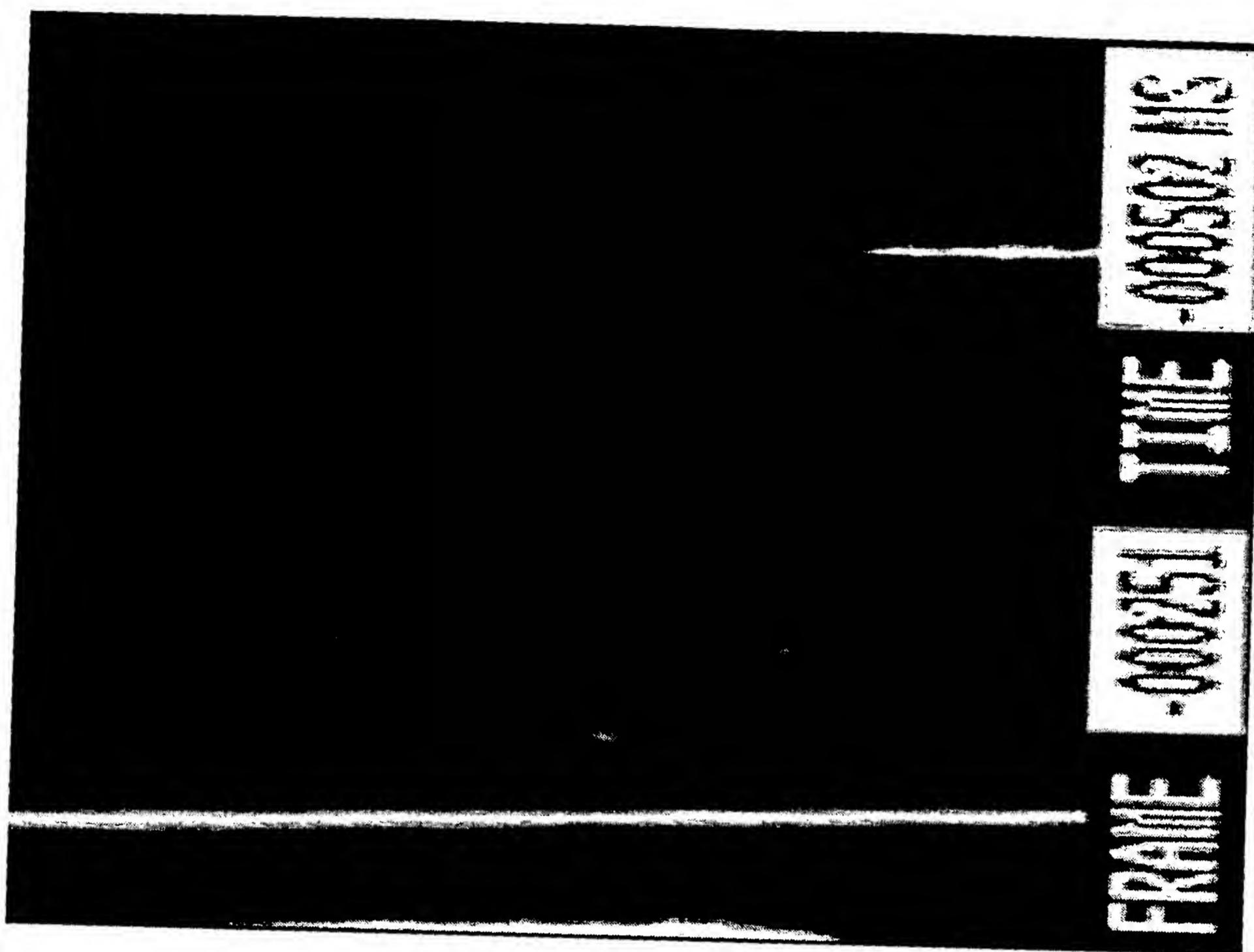
$t$  minus 12 ms

FIG. 12a



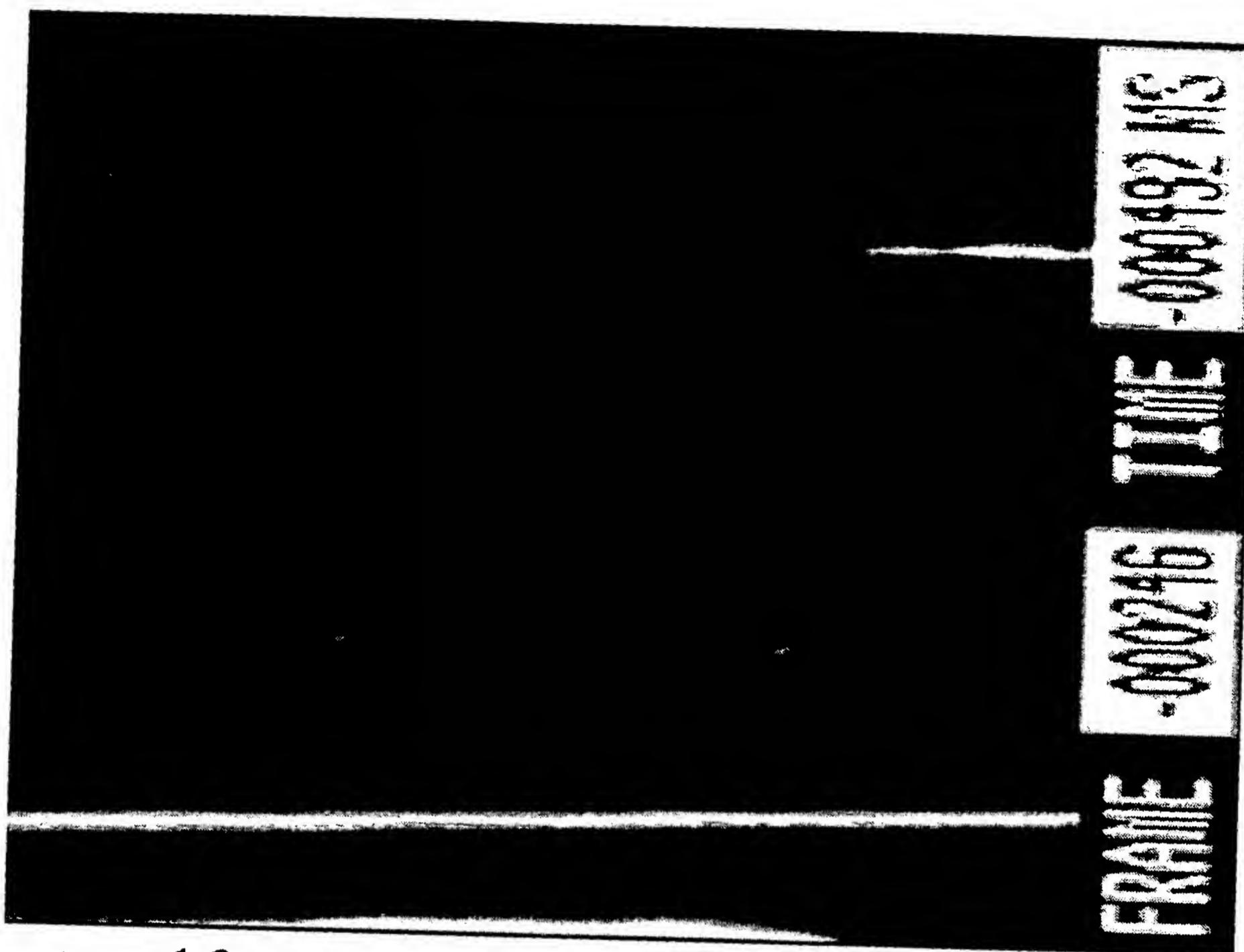
t minus 4 ms

FIG. 12b

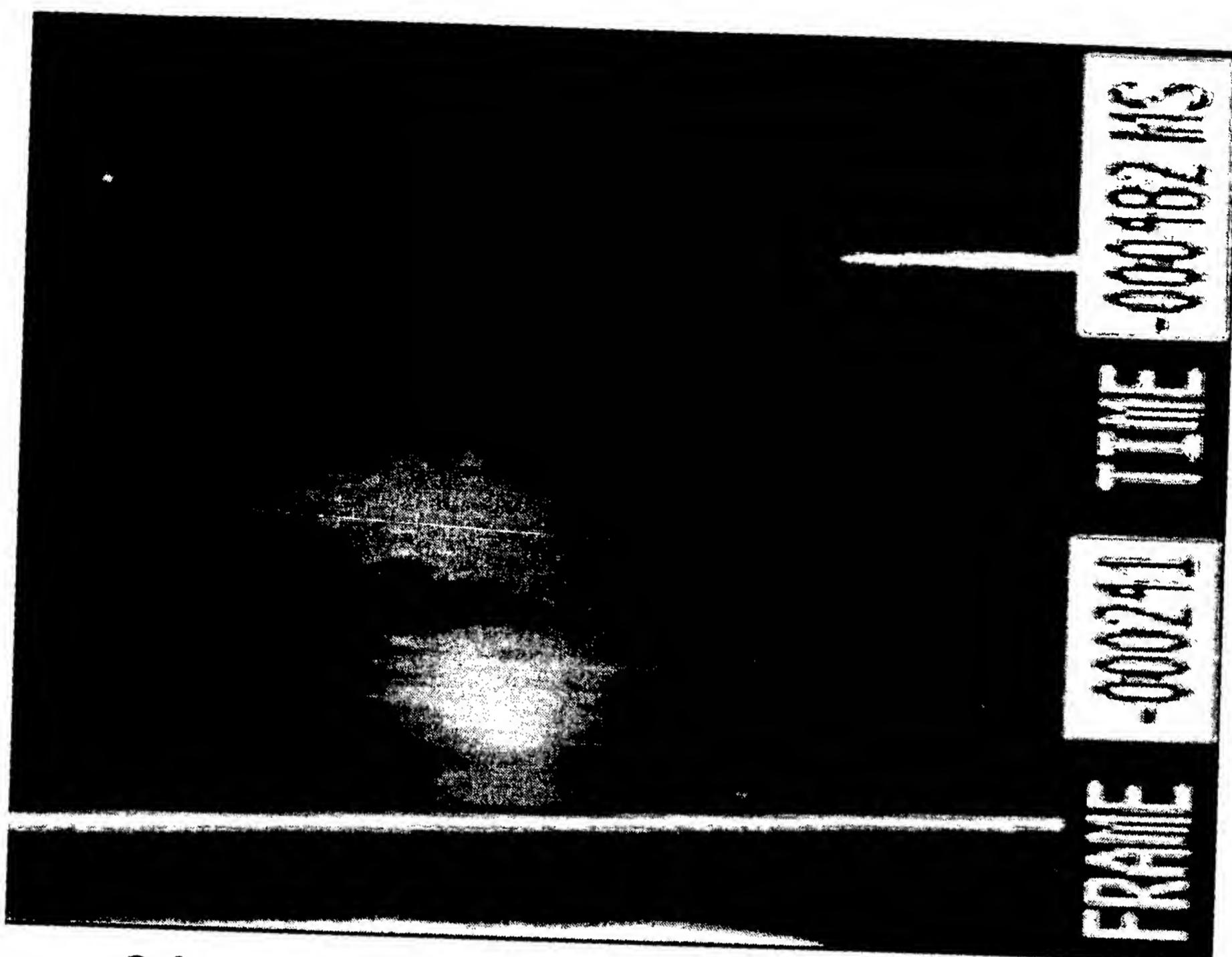


$t = 0$  ms: oxidizer drop hits fuel

**FIG. 12c**



$t = 10$  ms: propellants start reacting  
FIG. 12d



$t = 20$  ms: propellants visibly reacting  
FIG. 12e



$t = 24$  ms: propellants ignite  
FIG. 12f